

Application No. 10/810,263  
Amendment "A" dated December 29, 2005

### AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application:

#### Listing of Claims:

Claims 1-5. (Cancelled).

6. (New) A diversity handover control method in a mobile communication system including a mobile station, a plurality of base stations, and a center connected to said plurality of base stations, said mobile communication system carrying out diversity handover in which said mobile station communicates with said plurality of base stations simultaneously, said diversity handover control method comprising the steps of:

monitoring, at said mobile station, radio condition quality corresponding to a plurality of branches;

selecting, at said mobile station, one or more addition branch candidates based on the monitored radio condition quality;

arranging, at said mobile station, said addition branch candidates in order of the monitored radio condition quality;

notifying, from said mobile station to said center, information on said plurality of branches including said addition branch candidates, said addition branch candidates being notified in the arranged order; and

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trying, at said center, to establish one or more communicating branches for the diversity handover by using said notified addition branch candidates in the arranged order.

Claim 7. (New) A diversity handover control method as claimed in claim 6, wherein

each of said plurality of branches comprises a radio branch between said mobile station and one of said base stations, and a cable branch between one of said base stations and said center, and

when a communicating branch is established, a radio branch of the communicating branch is established after a cable branch of the communicating branch is established.

Claim 8. (New) A diversity handover control method as claimed in claim 6, further comprising the steps of:

selecting, at said mobile station, one or more deletion branch candidates based on the monitored radio condition quality;

notifying, from said mobile station to said center, information on a plurality of branches including said one or more deletion branch candidates; and

deleting, at said center, one or more communicating branches which are being used for the diversity handover by using said notified deletion branch candidates,

wherein each of said plurality of branches comprises a radio branch between said mobile station and one of said base stations, and a cable branch between one of said base stations and said center, and

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when a communicating branch is deleted, a cable branch of the communicating branch is deleted after a radio branch of the communicating branch is deleted.

Claim 9. (New) A diversity handover control method as claimed in claim 6, wherein

said plurality of branches include one or more communicating branches,

each of said plurality of branches comprises a radio branch between said mobile station and one of said base stations, and a cable branch between one of said base stations and said center, and

when the sum of the number of communicating branches and the number of addition branch candidates exceeds the maximum number of radio branches which can be established simultaneously, said center tries to establish one or more communicating branches for the diversity handover by using said notified addition branch candidates in the arranged order, up to the maximum number of cable branches which said center can process simultaneously,

Claim 10. (New) A diversity handover control method as claimed in claim 9, wherein

said plurality of branches include one or more deletion branch candidates,

said diversity handover control method comprises the step of deleting, at said center, one or more communicating branches which are being used for the diversity handover and correspond to said deletion branch candidates, and

when the sum of the number of communicating branches not including said deleted communicating branches and the number of addition branch candidates exceeds the maximum

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number of radio branches which can be established simultaneously, said center tries to establish one or more communicating branches for the diversity handover by using said notified addition branch candidates in the arranged order, up to the maximum number of cable branches which said center can process simultaneously.

Claim 11. (New) A diversity handover control method in a mobile communication system including a mobile station, a plurality of base stations, and a center connected to said plurality of base stations, said mobile communication system carrying out diversity handover in which said mobile station communicates with said plurality of base stations simultaneously, said diversity handover control method comprising the steps of:

monitoring, at said mobile station, radio condition quality corresponding to a plurality of branches;

selecting, at said mobile station, one or more addition branch candidates based on the monitored radio condition quality;

obtaining, at said mobile station, a relative value of each of said addition branch candidates indicative of order of precedence to be used for the diversity handover based on the monitored radio condition quality of said addition branch candidates;

notifying, from said mobile station to said center, information on said plurality of branches including said addition branch candidates and their relative values; and

trying, at said center, to establish one or more communicating branches for the diversity handover by using said notified addition branch candidates in the order indicated by their relative values.

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Claim 12. (New) A diversity handover control method as claimed in claim 11, wherein

each of said plurality of branches comprises a radio branch between said mobile station and one of said base stations, and a cable branch between one of said base stations and said center, and

when a communicating branch is established, a radio branch of the communicating branch is established after a cable branch of the communicating branch is established.

Claim 13. (New) A diversity handover control method as claimed in claim 11, further comprising the steps of:

selecting, at said mobile station, one or more deletion branch candidates based on the monitored radio condition quality;

notifying, from said mobile station to said center, information on a plurality of branches including said one or more deletion branch candidates; and

deleting, at said center, one or more communicating branches which are being used for the diversity handover by using said notified deletion branch candidates,

wherein each of said plurality of branches comprises a radio branch between said mobile station and one of said base stations, and a cable branch between one of said base stations and said center, and

when a communicating branch is deleted, a cable branch of the communicating branch is deleted after a radio branch of the communicating branch is deleted.

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Claim 14. (New) A diversity handover control method as claimed in claim 11, wherein

said plurality of branches include one or more communicating branches,

each of said plurality of branches comprises a radio branch between said mobile station and one of said base stations, and a cable branch between one of said base stations and said center, and

when the sum of the number of communicating branches and the number of addition branch candidates exceeds the maximum number of radio branches which can be established simultaneously, said center tries to establish one or more communicating branches for the diversity handover by using said notified addition branch candidates in the order indicated by their relative values, up to the maximum number of cable branches which said center can process simultaneously.

Claim 15. (New) A diversity handover control method as claimed in claim 14, wherein

said plurality of branches include one or more deletion branch candidates,

said diversity handover control method comprises the step of deleting, at said center, one or more communicating branches which are being used for the diversity handover and correspond to said deletion branch candidates, and

when the sum of the number of communicating branches not including said deleted communicating branches and the number of addition branch candidates exceeds the maximum number of radio branches which can be established simultaneously, said center tries to establish one or more communicating branches for the diversity handover by using said notified addition

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branch candidates in the order indicated by their relative values, up to the maximum number of cable branches which said center can process simultaneously.

Claim 16. (New) A diversity handover control method as claimed in claim 11, further comprising the steps of:

storing, at said center, one or more notified addition branch candidates which are not established in said try to establish the communicating branches for the diversity handover;

selecting, at said mobile station, one or more deletion branch candidates based on the monitored radio condition quality;

autonomously releasing, at said mobile station, communication branches of said deletion branch candidates; and

notifying, from said mobile station to said center, the release of the communication branches,

wherein when said center is notified of the release of the communication branches, said center tries to establish one or more communicating branches for the diversity handover by using said stored addition branch candidates in order indicated by their relative values.

Claim 17. (New) A mobile station for communicating with a plurality of base stations simultaneously in diversity handover, said mobile station comprising:

means for monitoring radio condition quality corresponding to a plurality of branches;

means for selecting one or more addition branch candidates based on the monitored radio condition quality;

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means for arranging said addition branch candidates in order of the monitored radio condition quality; and

means for notifying a center of information on said plurality of branches including said addition branch candidates, said addition branch candidates being notified in the arranged order.

Claim 18. (New) A mobile station for communicating with a plurality of base stations simultaneously in diversity handover, said mobile station comprising:

means for monitoring radio condition quality corresponding to a plurality of branches;

means for selecting one or more addition branch candidates based on the monitored radio condition quality;

means for obtaining a relative value of each of said addition branch candidates indicative of order of precedence to be used for the diversity handover based on the monitored radio condition quality of said addition branch candidates; and

means for notifying a center of information on said plurality of branches including said addition branch candidates and their relative values.

Claim 19. (New) A mobile station as claimed in claim 18, further comprising:

means for selecting one or more deletion branch candidates based on the monitored radio condition quality;

means for notifying said center of said deletion branch candidates; and

means for deciding whether there is room for additionally establishing one or more communicating branches for the diversity handover,



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wherein said mobile station notifies said center of all of said addition branch candidates and their relative values, if there is room for additionally establishing one or more communicating branches for the diversity handover.

Claim 20. (New) A mobile station as claimed in claim 19, wherein said mobile station decides that there is room for additionally establishing one or more communicating branches for the diversity handover, when there are one or more deletion branch candidates, or the number of communicating radio branches is less than the maximum number of radio branches which can be established simultaneously.

Claim 21. (New) A mobile station as claimed in claim 18, wherein when the number of communicating radio branches is equal to the maximum number of radio branches which can be established simultaneously, said mobile station notifies said center of only addition branch candidates whose radio condition quality is better than that of the lowest priority communicating branch by more than a predetermined threshold value, and their relative values.

Claim 22. (New) A mobile station as claimed in claim 18, further comprising:  
means for selecting one or more deletion branch candidates based on the monitored radio condition quality;  
means for autonomously releasing communication branches of said deletion branch candidates; and  
means for notifying said center of the release of the communication branches.

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Claim 23. (New) A center of a mobile communication system being connected to a plurality of base stations and communicating with a mobile station via the base stations, said center comprising:

means for receiving information on one or more addition branch candidates, said addition branch candidates having been arranged in order of radio condition quality by said mobile station and notified from said mobile station in the arranged order; and

means for trying to establish one or more communicating branches for diversity handover by using said notified addition branch candidates in the arranged order.

Claim 24. (New) A center of a mobile communication system being connected to a plurality of base stations and communicating with a mobile station via the base stations, said center comprising:

means for receiving information on one or more addition branch candidates and a relative value of each of said addition branch candidates indicative of order of precedence to be used for diversity handover, said addition branch candidates and their relative values having been notified from said mobile station; and

means for trying to establish one or more communicating branches for the diversity handover by using said notified addition branch candidates in the order indicated by their relative values.